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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,314	02/22/2005	Rene Jos Houben	TNO-7 (P59249US00)	6014

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EXAMINER

FEGGINS, KRISTAL J

ART UNIT	PAPER NUMBER
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2861

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/03/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/525,314

Applicant(s)

HOUBEN, RENE JOS

Examiner

K. Feggins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-14, 16-22 is/are rejected.
- 7) ☒ Claim(s) 4, 5 and 15 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 13 & 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 13 the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim 22 provides for the use of print a fluid material with an apparatus, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 22 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Objections

3. Claim 21 & 22 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

With regards to claim 22, claim 22 does not contain any new limitations not presented in claim 1.

With regards to claim 21, has improper claim dependency.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 11, 16-18, 21 & 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsuchiya et al. (US 6,575,564 B1).

Tsuchiya et al. disclose the following:

* Re claims 1 & 22, an apparatus & method for printing a fluid material by means of a continuous jet printing technique (Abstract, col 6, lines 7-11, fig 7);

* a reservoir/upper portion/ for storing the material/11/, a channel/lower portion/ connected with the reservoir, which is provided with at least one outflow/nozzle/ opening

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from which, in use, flows a jet of the material breaking up into drops (col 6, lines 7-11, figs 1, 3, 6, 7, 10, 24);

* a pressure regulating mechanism/controller/ for varying the pressure of the material upstream of the outflow opening for the purpose of obtaining the jet breaking up into drops, the apparatus being further provided with pressure generating means/piezoelectric device, 14/ for passing the material under a predetermined pressure through the channel in the direction of the outflow opening (col 6, lines 1-19, figs 1, 3, 6, 7, 10, 24) characterized in that the pressure generating means are arranged for applying the predetermined pressure to the material in the channel hydraulically and/or pneumatically/pressure applied by piezo-transducer element or nitrogen gas (col 1, lines 27-30, col 6, lines 10-18, col 11, lines 23-30, figs 6, 10).

* Re claim 2, characterized in that the pressure generating means comprise a gas/nitrogen gas , 140/ source coupled to the reservoir and/or the channel via a gas connection (fig 10).

* Re claim 3, characterized in that the gas/140/ source comprises a gas bottle/cylinder/ (fig 10).

* Re claim 11, characterized in that the pressure regulating mechanism comprises a movable control pins/syringe, 112/, which control pin can be moved in a

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longitudinal direction towards/away from the outflow opening /inherent features of a syringe having a controlled pressure/ (col 13, lines 30-52, fig 10).

* Re claim 16, characterized in that a diameter of the outflow opening is in the interval of 20-100 μ m/200 μ m/ (col 6, line 19-20).

* Re claim 17, characterized in that the apparatus is provided with a heating element/7/, which may or may not be regulable, for heating the material in the channel (col 8, lines 32-57, col 9, lines 2-4, col 1, lines 21-38, col 2, lines 4-19, figs 3 & 4).

* Re claim 18, characterized in that the heating element is arranged for bringing the material to a temperature which is in the interval of 15-700°C/100°C/ (col 8, lines 32-58, 65-67, col 9, lines 1-10, col 1, lines 21-38, col 2, lines 4-19, figs 3 & 4).

* Re claim 21, characterized in that the material at the time of flowing out through the outflow opening has a viscosity which is in the interval of 150*10⁻³ to 400*10⁻³ Pa*s/300cP or above/ (col 3, lines 1-4).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 6-10, 13 & 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya et al..

Tsuchiya et al. disclose the following:

* extrusion pressure for the rear of the nozzle 0.3 bar (co 10, lis 43)

* Re claim 13, characterized in that the movable control pin is situated in the channel, while the longitudinal direction of the control pin/plunger/ is directed substantially perpendicularly to the plane of the outflow opening/feature of a syringe having a plunger, the control pin/plunger/ is laterally supported/obvious feature, the syringe must be supported by some kind of structure/ (col 13, lines 30-53, fig 10).

* Re claim 20, a method for printing a fluid material using a continuous jet printing technique, wherein the material is passed under pressure from a reservoir through a channel to at least one outflow opening of the channel, after which the material is passed through the outflow opening (col 6, lines 1-19, figs 1, 3, 6, 7, 10, 24);

Tsuchiya et al. do not disclose the following:

* Re claims 6, characterized in that the predetermined pressure is a pressure between 15 and 600 bars.

* Re claim 7, characterized in that the predetermined pressure is a pressure between 100 and 600 bars.

* Re claim 8, characterized in that the predetermined pressure is a pressure between 200 and 600 bars.

* Re claim 9, characterized in that the predetermined pressure is a pressure between 300 and 600 bars.

* Re claim 10, characterized in that the predetermined pressure is a pressure between 400 and 600 bars.

* further Re claim 20, characterized in that the pressure in at least a part of the channel upstream of the outflow opening is in the interval of 15-600 bars [$\approx 15 \cdot 10^5$ to $600 \cdot 10^5$ Pa].

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize predetermined pressure is a pressure between 15 and 600 bars; predetermined pressure is a pressure between 100 and 600 bars; predetermined pressure is a pressure between 200 and 600 bars; predetermined pressure is a pressure between 300 and 600 bars; predetermined pressure is a pressure between 400 and 600 bars, pressure in at least a part of the channel upstream of the outflow opening is in the interval of 15-600 bars for the purpose of forming sharp imaging dots during printing, since it has been held that where the general conditions of

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a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

It would have been obvious at the time of the invention was made to a person having ordinary skill in the art to utilize a control pin that is laterally supported, predetermined pressure is a pressure between 15 and 600 bars; predetermined pressure is a pressure between 100 and 600 bars; predetermined pressure is a pressure between 200 and 600 bars; predetermined pressure is a pressure between 300 and 600 bars; predetermined pressure is a pressure between 400 and 600 bars, taught by Tsuchiya et al. for the purpose of optionally adjusting the pressure applied to the syringe and for the purpose of forming sharp imaging dots during printing.

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8. Claims 12 & 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya et al. in view of Ishikawa et al. (6,874,870 B2).

Tsuchiya et al. disclose

* Re claim 12, characterized in that an end of the control pin can be placed at a predetermined distance from the outflow opening, for varying the pressure adjacent the outflow opening by means of vibration of the control pin (col 13, lines 30-52, fig 10).

* Re claim 14, characterized in that the pressure regulating mechanism comprises a piezoelement for driving the control pin (col 1, lines 27-30, col 6, lines 10-18, col 11, lines 23-30, figs 6, 10).

Tsuchiya et al. do not disclose the following:

* Re claim 12, characterized in that an end of the control pin can be placed at a predetermined distance of 15-500 μ m from the outflow opening,

Ishikawa et al. disclose the following:

* Re claim 12, characterized in that an end of the control pin can be placed at a predetermined distance of 2.0-5.0mm from the outflow opening,

Although, Ishikawa et al. does not disclose characterized in that an end of the control pin can be placed at a predetermined distance of 15-500 μ m from the outflow opening. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize an end of the control pin can be placed at a predetermined distance of 15-500 μ m from the outflow opening for the purpose of

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achieving stable ink ejection, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

It would have been obvious at the time of the invention was made to a person having ordinary skill in the art to utilize an end of the control pin can be placed at a predetermined distance of 15-500 μ m from the outflow opening, as taught by Ishikawa into Tsuchiya et al. for the purpose of achieving stable ink ejection.

9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya et al..

Tsuchiya et al. disclose the following:

- * it is known that there are optimum temperature ranges respectively for different viscous substances (col 8, line 32-44, col 1, lines 21-38, col 2, lines 4-19).

- * heating ink substance to a temperature range from 50-150°C by heater device (col 11, lines 25-33).

Tsuchiya et al. do not disclose the following:

- * Re claim 19, characterized in that the heating element is arranged to bring the material to a temperature which is in the interval of 150-300°C.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize an heating element is arranged to bring the material to a temperature which is in the interval of 150-300°C, for the purpose of heating achieving optimum temperature ranges respectively for different viscous

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substances, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

It would have been obvious at the time of the invention was made to a person having ordinary skill in the art to utilize the heating element is arranged to bring the material to a temperature which is in the interval of 150-300°C, taught by Tsuchiya et al. for the purpose of achieving optimum temperature ranges respectively for different viscous substances.

Allowable Subject Matter

10. Claims 4, 5 & 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Communication With The USPTO

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Feggins whose telephone number is 571-272-2254. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meier Stephen can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

kf


K. FEGGINS
PRIMARY EXAMINER
2/04